Condition Assessment Surveys (CAS)

Dennis Chew
Plant Engineering Department
April, 2006

PLANT ENGINEERING
Success through superior service

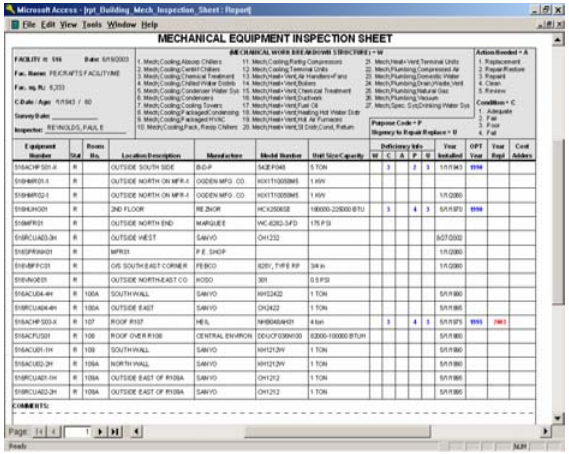
This Presentation Will Demonstrate

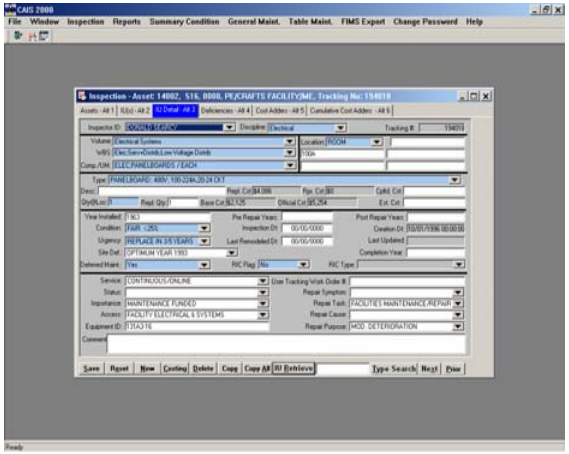
- Overview of the CAS Program at LLNL
- How CAS is accomplished at LLNL
- How CAS Deficiency Data is used
- Resources that support the CAS Program
- Benefits of the CAS Program at LLNL
- Improving the LLNL CAS Program

Overview

PLANT ENGINEERING
Success through superior service

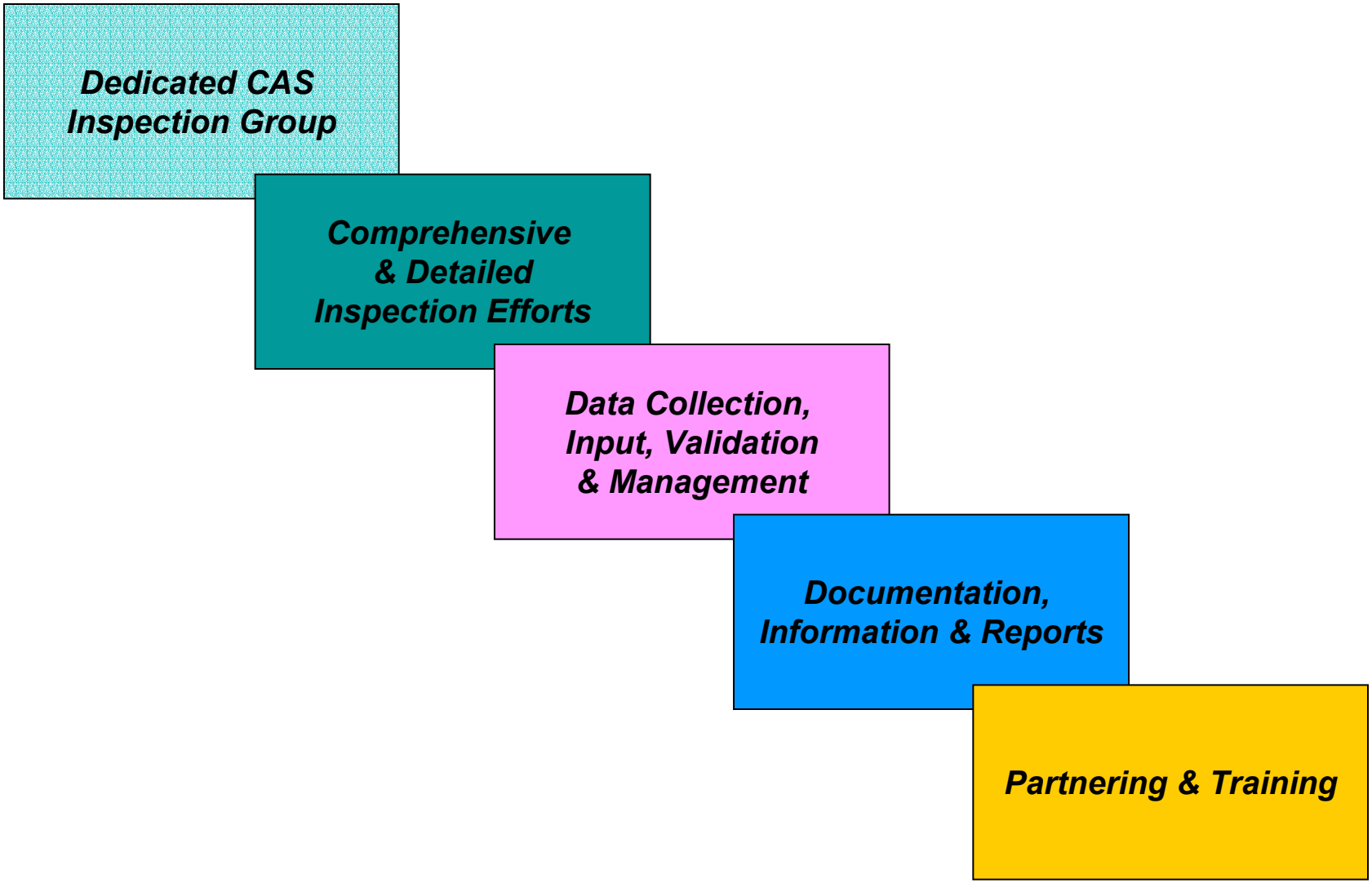
- CAS is a standardized deficiency identification process used for the evaluation of facilities and infrastructure assets
- Deficiency is defined as an item that has exceeded its service life and are verified by inspection that they can no longer be considered reliable or function as designed
- CAS Program was developed to comply with DOE Order 430.1B (Real Property Asset Management)
  - Each site must perform a condition assessment on all real property at least once during any five year period





How CAS is accomplished at LLNL

PLANT ENGINEERING
Success through superior service



PLANT ENGINEERING
Success through superior service

How is CAS accomplished at LLNL

- Dedicated CAS Inspection Group
  - Staff of 7 full time employees
  - Linked with Plant Engineering's computerized databases
  - Supports Maintenance Reinvestment & FIRP programs
- Comprehensive & Detailed Inspection Reports
  - Scheduled on a 3 year cycle. The site is broken into 3 equal parts
  - Discipline based survey efforts
  - Non-invasive inspection methods
  - Component life cycles are used
- Data Collection, Input, Validation & Management
  - All deficiencies are managed through the LLNL CAS office
  - Existing deficiencies are validated and updated
  - Created in-house inspection sheets

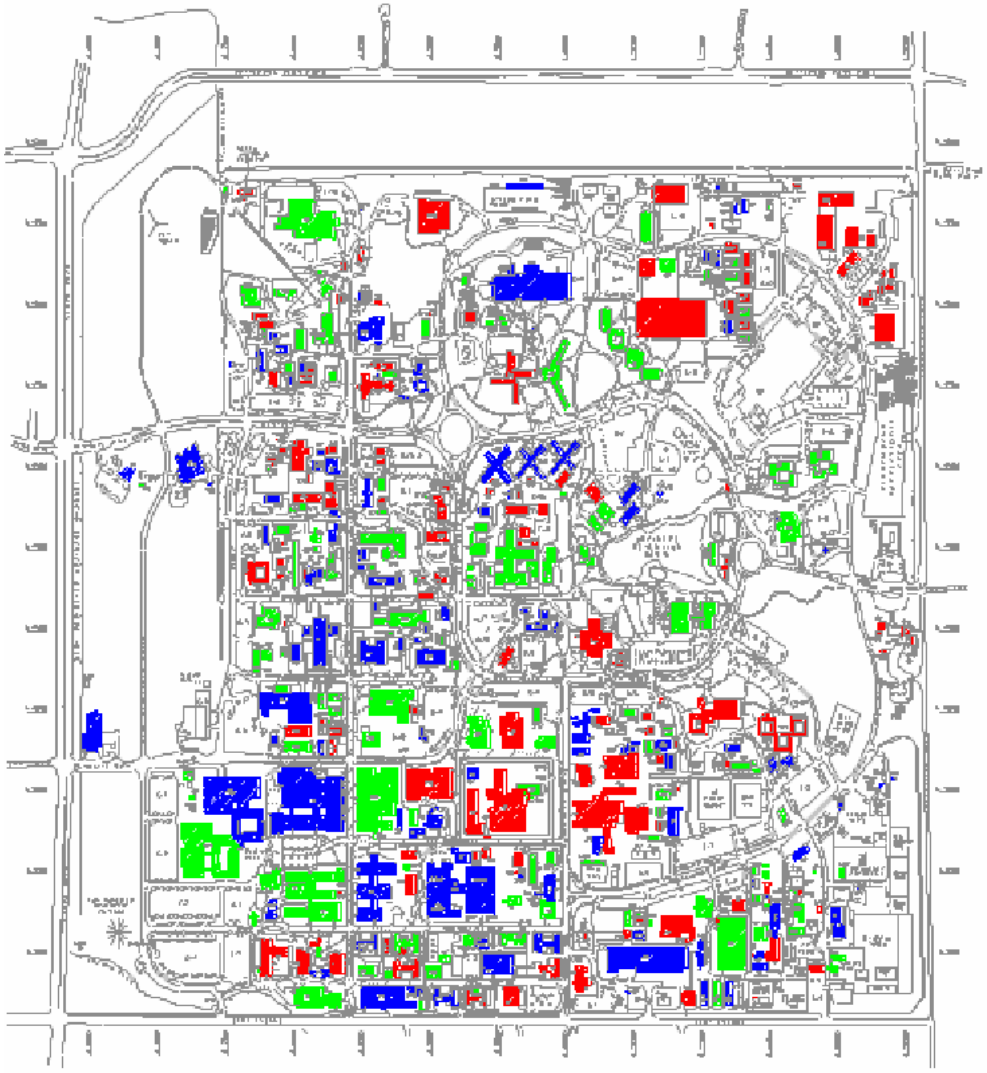
PLANT ENGINEERING
Success through superior service

How is CAS accomplished at LLNL

- Documentation Information & Reports
  - Asset Reports
    - Current/Projected deficiency backlog
    - Asset description/WBS summary
  - Associate Director Reports
    - Backlog/Projected Backlog summaries
    - WBS summaries by Directorate
    - ADFM Pre-Ranking report
  - Maintenance Reports
    - Maintenance Area of Responsibility
    - Deferred Maintenance Backlog, Projected, Detail, or summary
    - Maintenance Pre-Ranking report
- Partnering & Training
  - Relationships with external groups & organizations
    - Utilities, Maintenance Coordinators, Shops, Program representatives, etc…

LLNL Inspection Cycles

PLANT ENGINEERING
Success through superior service



Legend:

- Inspection cycle year 1
- Inspection cycle year 2
- Inspection cycle year 3

Resources supporting LLNL CAS

PLANT ENGINEERING
Success through superior service

- CAIS cost starts with RS Means Facilities Construction Data
  - Cost represents US national averages
  - Geographic adders
  - Updated annually
- Cost adders can be assigned to individual assets
  - Cost for work in and around Nuclear facilities
  - Security and/or Safety requirements
- 98% of LLNL Deficiency Costs are CAIS system generated

Benefits of the CAS Program at LLNL

PLANT ENGINEERING
Success through superior service

Beyond Compliance – Performing Condition Assessment Surveys

- Keys for Assessment Based Maintenance Management
  - **Reliable projected equipment survivor/failure rates**
  - **Consistently identifying/extending equipment design life**
  - **Significant life cycle cost savings/avoidance**
  - **Initiates Cradle to Grave Facilities & Maintenance Management**
- Integral for Facility Asset-wide Management
  - **CAS produces valuable data supporting management decisions**
    - **Availability = both Reliability and Maintainability**
    - **Decrease "Risks"**
  - **CAS provides flexibility to plan projects which helps to minimize mission downtime**

CAS Inspections have an attractive "Bang for Buck" factor

Improving LLNL's CAS Program

- CAS Inspection group has grown
  - Master Equipment List Inventory Control
  - Asbestos and Lead Database Management
  - Serves as a resource to the Electrical Authority Having Jurisdiction (AHJ) program
  - Infrared scanning of electrical equipment

What's Next?

- Expanding the Infrared scanning effort to mechanical/civil/architectural discipline CAS inspections

- Incorporating CAS inspection data into LLNL's Geographical Information System providing real-time data to our users/customers